

IN THE CLAIMS:

Please reconsider the claims as follows:

1 1. (currently amended) A node for processing upstream optical signal and downstream
2 optical signal in a fiber optic communication network, the node comprising:

3 a first optical block including a first device for converting a first upstream optical
4 signal at a first frequency into a first electrical signal, a second device for demodulating from
5 the first electrical signal first information modulated on the first upstream optical signal, a
6 third device for modulating on a second electrical signal second information, a fourth device
7 for converting the second information modulated on the second electrical signal into a second
8 optical signal at the first frequency, a fifth device for providing a third optical signal at a
9 second frequency, the third optical signal having third information modulated on it, a sixth
10 device for multiplexing the second and third optical signals and placing the multiplexed
11 second and third optical signals on the network as upstream optical signal;

12 a second optical block including a first device for converting a first downstream
13 optical signal at a first frequency into a first electrical signal, a second device for
14 demodulating from the first electrical signal first information modulated on the first
15 downstream optical signal, a third device for modulating on a second electrical signal second
16 information, a fourth device for converting the second information modulated on the second
17 electrical signal into a second optical signal at the first frequency, a fifth device for providing
18 a third optical signal at a second frequency, the third optical signal having third information
19 modulated on it, a sixth device for multiplexing the second and third optical signals and
20 placing the multiplexed second and third optical signals on the network as downstream
21 optical signal; and

22 a control device, for processing control information included within said first
23 information of each of said first and second optical block and providing within said second
24 information of each of said first and second optical block control information adapted for use
25 by another node, wherein, in response to a fault that results in disruption of the control
26 information, the control device causes the channels of the first upstream optical signal to be
27 combined with the channels of the first downstream optical signal to provide thereby at least
28 one valid copy of each channel, and in response to no fault that results in disruption of the

29 control information, the control device selects either the first upstream optical signal or the
30 first downstream optical signal based on a relative quality of the optical signals;
31 wherein the first frequency is dropped and re-generated by each node in the network;
32 and the first information in said first upstream optical signal and the first information in said
33 first downstream optical signal each contains a control component, a dropped data
34 component and a through data component.

1 2. (original) The apparatus of claim 1 wherein the network further carries a fourth
2 optical signal at the second frequency, the apparatus further including a seventh device for
3 converting the fourth optical signal into a third electrical signal, and an eighth device for
4 demodulating from the third electrical signal fourth information modulated on the fourth
5 optical signal.

1 3. (original) The apparatus of claim 2 further including a ninth device for providing a
2 fifth optical signal at a third frequency, the fifth optical signal having fifth information
3 modulated on it, the sixth device multiplexing the second, third and fifth optical signals and
4 placing the multiplexed second, third and fifth optical signals on the network.

1 4. (original) The apparatus of claim 3 wherein the network further carries a sixth optical
2 signal at the third frequency, the apparatus further including a tenth device for converting the
3 sixth optical signal into a fourth electrical signal, and an eleventh device for demodulating
4 from the fourth electrical signal sixth information modulated on the sixth optical signal.

1 5. (original) The apparatus of claim 1 further including a seventh device for providing a
2 fourth optical signal at a third frequency, the fourth optical signal having fourth information
3 modulated on it, the sixth device multiplexing the second, third and fourth optical signals and
4 placing the multiplexed second, third and fourth optical signals on the network.

1 6. (previously presented) A fiber optic network including the node of claim 1 and
2 further including a second node, the second node including a first device for converting a
3 first optical signal at a first frequency carried by the network into a first electrical signal, the

4 second node further including a second device for demodulating first information from the
5 first electrical signal modulated on the first optical signal, the second node further including a
6 third device for modulating second information on a second electrical signal, and the second
7 node further including a fourth device for converting the second information modulated on
8 the second electrical signal into a second optical signal at the first frequency.

1 7. (original) The apparatus of claim 6 wherein the network further carries a third optical
2 signal at a second frequency, the second node further including a fifth device for converting
3 the third optical signal into a third electrical signal having third information modulated on it.

1 8. (original) The apparatus of claim 7, the second node further including a sixth device
2 for modulating fourth information on a fourth electrical signal, and the second node further
3 including a seventh device for converting the fourth information modulated on the fourth
4 electrical signal into a fourth optical signal at the second frequency and placing the
5 multiplexed second and fourth optical signals on the network.

1 9. (currently amended) A node for receiving upstream optical signal and downstream
2 optical signal in a fiber optic communication network, comprising:
3 a first optical block including a first device for converting a first upstream optical
4 signal at a first frequency into a first electrical signal, a second device for demodulating first
5 information from the first electrical signal modulated on the first upstream optical signal, a
6 third device for modulating second information on a second electrical signal, a fourth device
7 for converting the second information modulated on the second electrical signal into a second
8 optical signal at the first frequency;
9 a second optical block including a first device for converting a first downstream
10 optical signal at a first frequency into a first electrical signal, a second device for
11 demodulating first information from the first electrical signal modulated on the first
12 downstream optical signal, a third device for modulating second information on a second
13 electrical signal, a fourth device for converting the second information modulated on the
14 second electrical signal into a second optical signal at the first frequency; and

15 a control device, for processing control information included within said first
16 information of each of said first and second optical block and providing within said second
17 information of each of said first and second optical block control information adapted for use
18 by another node, wherein, in response to a fault that results in disruption of the control
19 information, the control device causes the first information from said first upstream optical
20 signal to be combined with the first information from said first downstream optical signal to
21 provide thereby at least one valid copy of the first information, and in response to no fault
22 that results in disruption of the control information, the control device selects either the first
23 information from the upstream optical signal or the first information from the first
24 downstream optical signal based on a relative quality of the optical signals;
25 wherein the first frequency is dropped and re-generated by each node in the network;
26 and the first information in said first upstream optical signal and the first information in said
27 first downstream optical signal each contains a control component, a dropped data
28 component and a through data component.

1 10. (original) The apparatus of claim 9 wherein the network further carries a third optical
2 signal at a second frequency, further including a fifth device for converting the third optical
3 signal into a third electrical signal having third information modulated on it.

1 11. (original) The apparatus of claim 10 further including a sixth device for modulating
2 fourth information on a fourth electrical signal, and a seventh device for converting the
3 fourth information modulated on the fourth electrical signal into a fourth optical signal at the
4 second frequency and placing the multiplexed second and fourth optical signals on the
5 network.

1 12. (previously presented) The apparatus of claim 1 wherein the fiber optic network
2 includes a closed loop optical fiber, one of the first-mentioned nodes and at least one of the
3 other nodes coupled to the closed loop optical fiber.

1 13. (previously presented) The apparatus of claim 1 wherein the fiber optic network
2 includes two closed loop optical fibers for carrying the first optical signal in opposite
3 directions, each node being coupled to both optical fibers.

1 14. (previously presented) The apparatus of claim 13 wherein the two closed loop optical
2 fibers also carry the third optical signal in the two opposite directions.

1 15. (previously presented) The apparatus of claim 2 wherein the fiber optic network
2 includes a closed loop optical fiber, one of the first-mentioned nodes and at least one of the
3 other nodes coupled to the closed loop optical fiber.

1 16. (previously presented) The apparatus of claim 3 wherein the fiber optic network
2 includes a closed loop optical fiber, one of the first-mentioned nodes and at least one of the
3 other nodes coupled to the closed loop optical fiber.

17. (canceled)

18. (canceled)

19. (canceled)

20. (canceled)

1 21. (previously presented) A fiber optic network including the node of claim 2 and
2 further including a second node, the second node including a first device for converting a
3 first optical signal at a first frequency carried by the network into a first electrical signal, the
4 second node further including a second device for demodulating first information from the
5 first electrical signal modulated on the first optical signal, the second node further including a
6 third device for modulating second information on a second electrical signal, and the second
7 node further including a fourth device for converting the second information modulated on
8 the second electrical signal into a second optical signal at the first frequency.

1 22. (previously presented) A fiber optic network including the node of claim 3 and
2 further including a second node, the second node including a first device for converting a
3 first optical signal at a first frequency carried by the network into a first electrical signal, the
4 second node further including a second device for demodulating first information from the
5 first electrical signal modulated on the first optical signal, the second node further including a
6 third device for modulating second information on a second electrical signal, and the second
7 node further including a fourth device for converting the second information modulated on
8 the second electrical signal into a second optical signal at the first frequency.

1 23. (previously presented) A fiber optic network including the node of claim 4 and
2 further including a second node, the second node including a first device for converting a
3 first optical signal at a first frequency carried by the network into a first electrical signal, the
4 second node further including a second device for demodulating first information from the
5 first electrical signal modulated on the first optical signal, the second node further including a
6 third device for modulating second information on a second electrical signal, and the second
7 node further including a fourth device for converting the second information modulated on
8 the second electrical signal into a second optical signal at the first frequency.

1 24. (previously presented) A fiber optic network including the node of claim 5 and
2 further including a second node, the second node including a first device for converting a
3 first optical signal at a first frequency carried by the network into a first electrical signal, the
4 second node further including a second device for demodulating first information from the
5 first electrical signal modulated on the first optical signal, the second node further including a
6 third device for modulating second information on a second electrical signal, and the second
7 node further including a fourth device for converting the second information modulated on
8 the second electrical signal into a second optical signal at the first frequency.

1 25. (currently amended) A node for processing east-west optical signal and west-east
2 optical signal in a fiber optical communication network, the node comprising:

3 a first optical block adapted to receive control information included within upstream
4 east-west optical signal at a first frequency and transmit control information within
5 downstream east-west optical signal at said first frequency;

6 a second optical block adapted to receive control information included within
7 upstream west-east optical signal at said first frequency and transmit control information
8 within downstream west-east optical signal at said first frequency; and

9 a control device, for processing control information received by each of said first and
10 second optical block and providing within a second information of each of said first and
11 second optical block control information adapted for use by another node, wherein, in
12 response to a fault that results in disruption of the control information, the control device
13 causes [the] channels of the upstream east-west optical signal to be combined with [the]
14 channels of the upstream west-east optical signal to provide thereby at least one valid copy of
15 each channel, and in response to no fault that results in disruption of the control information,
16 the control device selects either the channels of the upstream east-west optical signal or the
17 channels of the upstream west-east optical signal based on a relative quality of the optical
18 signals;

19 wherein the first frequency is dropped and re-generated by each node in the network;
20 and each of the optical signals at said first frequency contains a control component, a
21 dropped data component and a through data component.